

Providence Career & Technical Academy

Pre-Engineering Exploratory Technology Syllabus

Instructor Name: Annalisa G. Marchesseault and Amy Laven **Time Frame:** 2021-2022

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Course Description:

- Students will get an understanding of what they will learn within the pre-engineering program. They will be introduced to what an engineer does and all the different type of engineers. They will learn to use Sketch-up and begin to utilize Solid Works and 3-D printing with the major topics covered including ethics in engineering, graphical communication, design process and SolidWorks.

Common Core Standards Addressed:

E & T GSE

ET1.1 (9-12) Students demonstrate an understanding of the influences of technology by:

- 1a. analyzing factors related to the development...
- 1b. assessing the relationship between available resources ...
- 1c. analyzing the evolution of factors

E & T GSE

ET1.2 (9-12) Students demonstrate an understanding of the impacts of technology by:

- 2a. revising a current technological system and analyzing the global....
- 2b. modeling and evaluating the design of a technological system ...

E & T GSE

ET2.1 (9-12) Students demonstrate an understanding of the attributes of the design process by:

- 1a. identifying in depth criteria and constraints by developing...
- 1b. evaluating and finalizing the most appropriate design solution ...
- 1c. creating a team and assigning roles to team members...

E & T GSE

ET2.2 (9-12) Students demonstrate an understanding of technological products and systems by:

- 2a. selecting independently the proper tools ...
- 2b. incorporating proper information, material selection...
- 2c. documenting, communicating, and evaluating processes ...
- 2d. synthesizing information to develop possible solutions ...

Providence Career & Technical Academy

Pre-Engineering Exploratory Technology Syllabus

Required Textbooks, Reading and Supplementary Materials:

“Official Guide to Certified Solid Works Associate Exams” by Planchard

Assignment and Examination Schedule

Unit #	Completion Date
1	End of QTR 1
2	End of QTR 2
3	End of QTR 3
4	End of QTR 4

Assignments given daily as well as hands on projects and presentations.

Freshman:

Unit 1

Students will join the Google Classroom

Introduction to pre-Engineering

What is an Engineer? You Tube video

Try Engineering Video (Crash course of Eng.)

Try Engineering Worksheet

Spaghetti Tower

What is Engineering Worksheet (Branches of Eng. (part 1&2))

Design Process Assignment

Eng. Design steps pre-test

Sketch-up House with Rubric

Measurement Unit with Tape Measure

Golden Gate Bridge Video and Questions

Little Bits Project

Plane Challenge

Catapult Project

Excel Exercises

Unit 2

Solidworks

Providence Career & Technical Academy

Pre-Engineering Exploratory Technology Syllabus

AutoCAD for Beginners
Soldering
Tinker cad Assignment
Instant Challenge Engineering Design Project

Unit 3

OSHA
Egg Drop
Solidworks

Unit 4

Processing
Computer Science
Solidworks

Grading Policy:

Students are encouraged to come to class prepared, and participate in all class activities. However in an effort to measure students true knowledge only assessments will be used to calculate the score of all students.

Category	Percentage,%
Participation	10
Class Work	50
Notebooks	10
Presentation	20
Exams	10

EXPECTATIONS:

Safety

We expect all students to thoroughly understand and observe any and all possible safety issues inside and outside the classroom. Students will be using power tools and will be soldering for various assignments.

Effort and Class Participation

We expect all students to give 100% and always try their hardest. This will be demonstrated through daily active participation on all assignments.

Conduct

Providence Career & Technical Academy

Pre-Engineering Exploratory Technology Syllabus

We expect all students to adhere to the school's handbook regarding classroom conduct. We believe a student performs at their best in a comfortable, safe environment on the physical and emotional levels. Teasing, bullying, hurtful and disrespectful behavior will NOT be tolerated.

Prior to RTII

1. The pre-engineering department shall identify on a monthly basis any student who has frequent absences, several missed assignments or failing assignments, and a lack of effort within the classroom and lab.
2. The first step once any students have been identified will be a meeting with the student to discuss the students' performance. In the case of necessity guidance and the director of CTE will be notified and met with to evaluate the student's lack of performance. This meeting will allow the student and instructor time to produce a comprehensive plan with the help of a guidance counselor and the CTE director to get the student to the appropriate performance level. This gives the student the opportunity to be a part of his or her education and be part of the plan that will help them to get back on track within the class. During the time of this meeting a time period will be set in which all missing work must be completed.
3. In the case that the student does not follow through and complete the work within the time period set in meeting one, a second meeting will take place. Within the second meeting the student, pre-engineering teacher, CTE director, guidance counselor and the parents/guardians of the students will attend.
4. If student performance continues to decline the student will be referred to RTII (see below for RTII plan)

RTII Plan

1. The pre-engineering department will meet once a month to discuss any potential students who are in the "at risk" category. The "at risk" category is defined as any freshmen or sophomore student missing more than 22 days in one quarter, also any student who fails one full module from the curriculum. The above will apply to juniors and seniors with the exception of if the student misses 11 days or more per a quarter.
2. Once any "at risk" students have been identified a spreadsheet shall be forwarded to guidance and special education. The spread sheet will be filed permanently in the electrical department.
3. A meeting shall be scheduled with the RTII team to discuss further actions to create a comprehensive plan for the student's to succeed.
4. Upon the student's completion of RTII the Pre-Engineering department shall contact

Providence Career & Technical Academy
Pre-Engineering Exploratory Technology Syllabus

the RTII team to discuss whether the student shall be referred to special education or if they can be dismissed from the Intervention plan.